

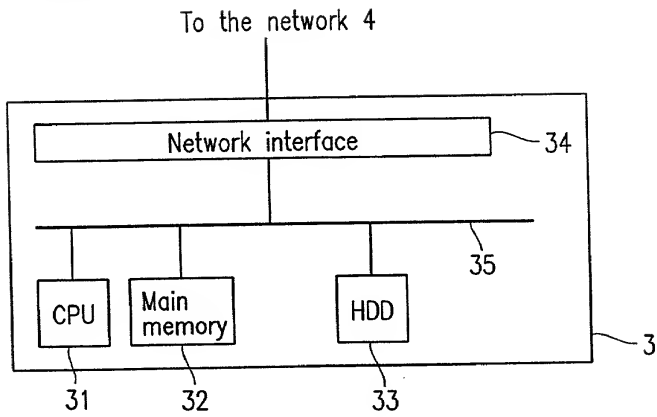
FIG. 2

FIG. 3

Shop	Product	Number of products ordered	Record #1
A1	B2	N1	

Shop	Product	Number of products ordered	Record #2
A1	B1	N2	

Shop	Product	Number of products ordered	Record #3
A1	B3	N3	

Shop	Product	Number of products ordered	Record #4
A2	B1	N4	

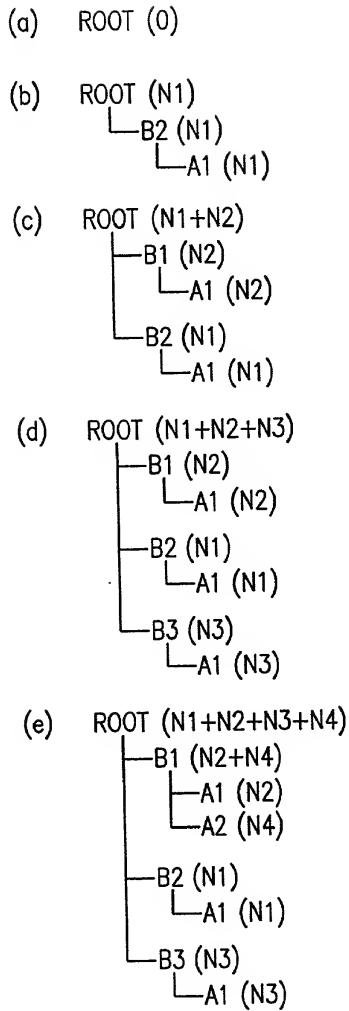
FIG. 4

FIG. 5

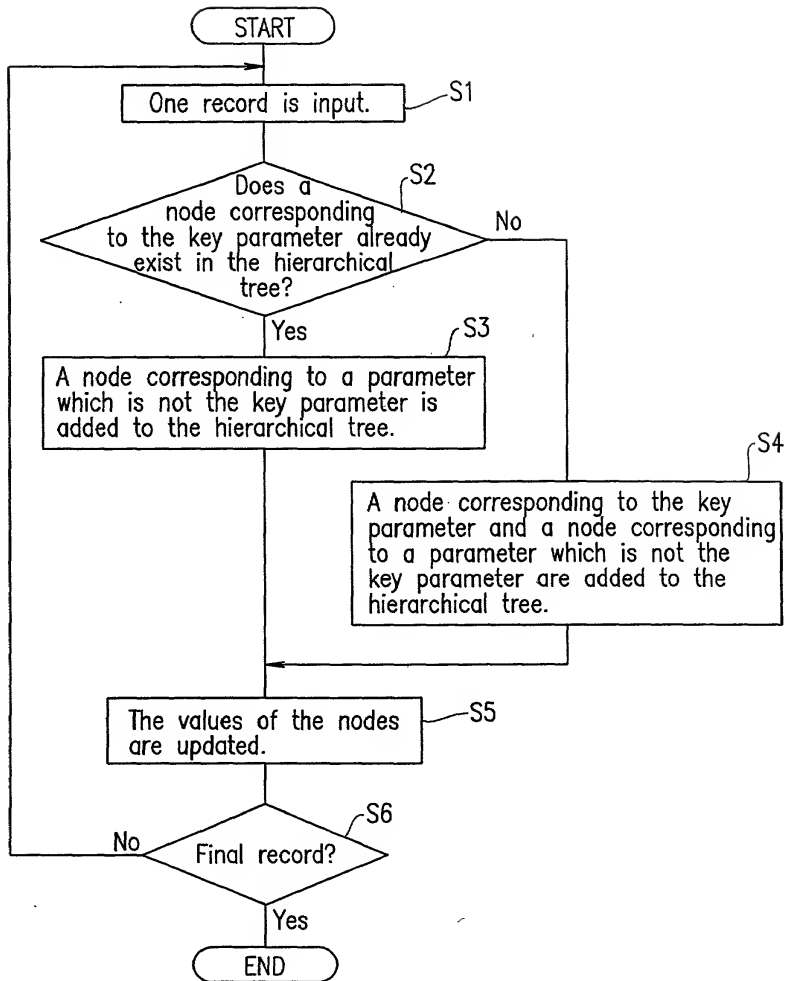


FIG. 6

	Node	Level	L Link	C Link	R Link	Value
1	ROOT	0	4	-1	-1	$N1+N2+N3+N4$
2	B2	1	3	1	6	$N1$
3	A1	2	-1	2	-1	$N1$
4	B1	1	5	1	2	$N2+N4$
5	A1	2	-1	4	8	$N2$
6	B3	1	7	1	-1	$N3$
7	A1	2	-1	6	-1	$N3$
8	A2	2	-1	4	-1	$N4$

FIG. 7

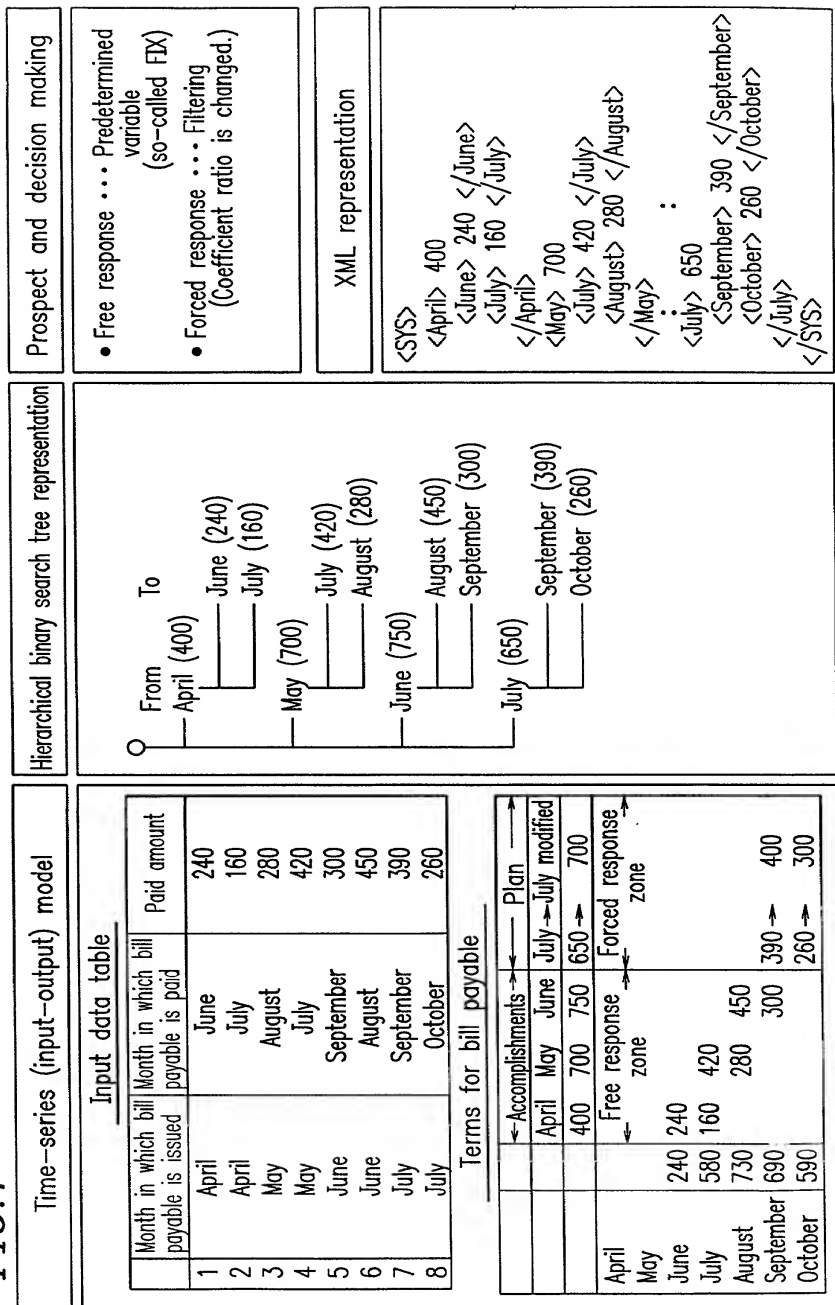
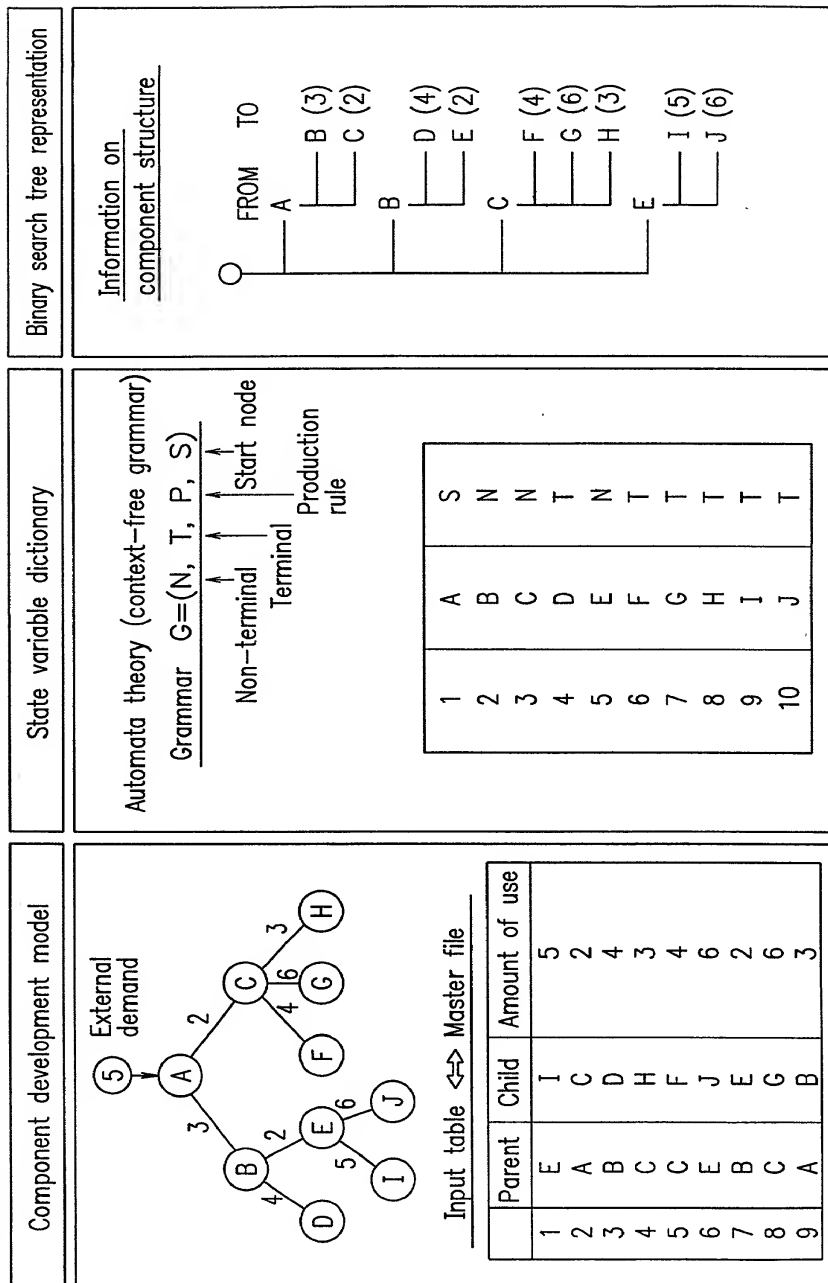
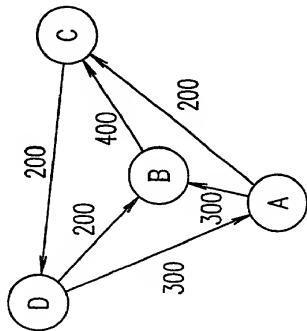


FIG. 8



Input-output model



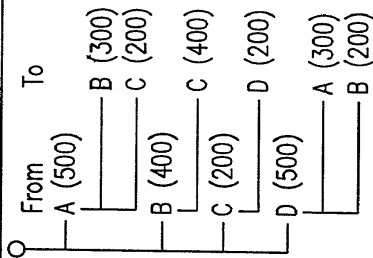
Input data table

	FROM	TO	Amount of money
1	D	B	200
2	D	A	300
3	B	C	400
4	A	B	300
5	C	D	200
6	A	C	200

Input-output table

TO \ FROM		A	B	C	D	SUM
A			300	200		500
B				400		400
C					200	200
D			300	200		500
SUM		300	500	600	200	1600

Hierarchical binary search tree representation



Input-output model formula

$$X = AX + u$$

XML representation

```
<SYS>
<A> 500
<B> 300 </B>
<C> 200 </C>
</A>
<B> 400
<C> 400 </C>
</B>
<C> 200
<D> 200 </D>
</C>
<D> 500
<A> 300 </A>
<B> 200 </B>
</D>
</SYS>
```